REMARKS

Claims 22, 23, 26-30, 33-39, 42-48, 51 and 52 are pending in the application. In the office action dated January 27, 2005, the examiner took the following action: (1) rejected claims 22, 26-29, 33-38, 42-47, 51 and 52 under 35 U.S.C. 103(a) as being unpatentable over Dougherty (U.S. 5,539,624) in view of Friend et al. (U.S. 5,247,190) or Klein (U.S. 6,085,698) or Cozad (U.S. 4,644,895); (2) rejected claims 23, 30, 39, and 48 under 35 U.S.C. 103(a) as being unpatentable over Dougherty in view of Friend et al. or Klein or Cozad, and further in view of Vecht et al. (U.S. 4,140,937). Applicant respectfully request reconsideration of the application in view of the following remarks.

During the discussion of the technical differences between the applied references and the embodiments of the invention, one must keep in mind that these discussed differences do not define the scope or interpretation of any of the claims. The discussion of the differences disclosed in the detailed specification is merely to help the examiner appreciate the important claim distinctions discussed thereafter.

Applicant teaches methods and apparatus for illuminating refueling hoses including, for example, refueling hoses for aerial refueling systems and the like. In one embodiment, Applicant teaches a conduit for transferring a flowable material including a wall member at least partially enclosing an inner region adapted to receive the flowable material and to facilitate transfer of the flowable material from a fist location to a second location. The wall member includes an electroluminescent outer layer being at least integrally formed with the wall member and disposed on an outer surface of the wall member, the electroluminescent outer layer being adapted to emit light outwardly to illuminate the conduit.

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701 Fifth Avenue, Suite 4800
Seattle, Washington 98104
206.381.3300 • F: 206.381.3301

Dougherty

Dougherty (U.S. 5,539,624) teaches a hose used for fuel transfer that has fiber-optic fibers embedded within the hose that emit light. As best show in figures 1 and 8a, 8b, and 6, Dougherty teaches a device having an optical-fiber bundle 47 which terminate 62 within the prescribed portions of the hose 60. At the terminated ends of the fibers 62 are miniature reflectors 61 which are used to direct and intensify the light escaping from the ends of the fibers. The miniature reflectors 61 reflect light emitted from the source 82 into the optical-fiber 80.

Dougherty does not disclose, teach or fairly suggest the apparatus taught by the Applicant. Specifically, Dougherty does not teach or suggest a fuel hose that includes an outer wall member including an "*electroluminescent coating disposed on an outer surface of the wall member, the electroluminescent coating comprises an electroluminescent paint.*" Dougherty only teaches using optical fibers embedded within the hose to transmit light. The light source directs light through the fiber-optic fibers, the light then is refracted through the miniature reflectors that direct and intensify the light escaping from the ends of the fibers.

In fact, Dougherty clearly teaches away from the fuel hose containing an electroluminescent coating. Dougherty states multiple times in the specification that the use of electricity in a fueling apparatus is undesirable stating "electricity, which could spark an explosion, must be avoided; the possibility of placing electrical lights on a fuel hose itself is therefore avoided as being unsafe." (1:10-12). Thus, Dougherty clearly teaches away from an electroluminescent coating. A fundamental aspect of such a coating is that that an electrical current is required for an electroluminescent light to function.

Friend et al.

Friend et al. (U.S. 5,247,190) teaches an electroluminescent device that reduces problems associated with poor power-consumption-to-luminescence ratios. The Friend disclosure is directed to polymers that can exhibit electroluminescent properties by the injection of charge

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701 Fifth Avenue, Suite 4800
Seattle, Washington 98104
206.381.3300 • F: 206.381.3301

carriers from suitable contact layers. Friend merely teaches new constructions for an electroluminescent device. As best shown by figures 2 and 3 Friend teaches the formation of an electroluminescent device with silica or borosilicate glass 1, a first charge injecting contact layer 2 and the resulting aluminum charge injecting contact layer which when exposed to air forms a oxide layer.

Friend et al. does not disclose, teach or fairly suggest the inventive apparatus taught by the Applicant. Specifically, Friend does not teach or suggest a *wall member including an electroluminescent coating on an outer surface of the wall member*. Furthermore, it is not proper to combine the teachings of Friend with the teachings of Dougherty, as described more fully below.

Klein

Klein (U.S. 6,085,698) teaches using electroluminescent fibers on articles of apparel such as clothing and dog leashes. Specifically, as best shown by figures 1, 3, and 5, Klein teaches apparel that contains a power supply 13 and a switch 14 for controlling the transmission of power from the power source to the electroluminescent fibers 16. According to Klein, the apparel constructed in accordance with the disclosed invention advantageously provide additional protection for people who walk their dog or jog at night from traffic.

Klein does not disclose, teach or fairly suggest the apparatus taught by the Applicant. The scope of the invention disclosed by Klein is contained to applying electroluminescent fibers to clothing and dog leaches. Specifically, Klein does not teach applying an *electroluminescent coating disposed on an outer surface of a wall member,* which permits a flowable material to travel through a conduit.

Furthermore, it is not proper to combine the teachings of Klein with the teachings of Dougherty, as described more fully below.

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Seattle, Washington 98104
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Cozad

Cozad (U.S. 4,644,895) teaches a marking system for a receiver aircraft for enhancing the visual and depth perception of a boom operator in a tanker ship. The marking system provides enhanced visual and depth perception by creating a 3-D effect of the refueling area of a receiver aircraft that helps facilitate the transfer of fuel. Specifically, as best shown by figures 5 and 6, Cozad teaches using a marking system where the fuel hose operator will know when the hose is in alignment with the receiver aircraft because the markings lines 16 and 17 will be equally spaced from 16' and 17'. When the aircraft are not aligned there will be a visual difference in the spacing between the respective pairs 16, 16' and 17, 17' that the operator can see. The line spacing between respective pairs occurs because the runway lines 16, 16', 17 and 17' are located on the convex surface of the aircraft.

Cozad does not disclose, teach or fairly suggest the apparatus taught by the Applicant. The scope of the invention disclosed by Cozad is restricted to applying luminescent material to a *receiver* aircraft. Embodiments of the invention disclosed by Applicant teach applying electroluminescent coating to the refueling hose or boom of a tanker aircraft. More specifically, Cozad does not teach applying an *electroluminescent coating disposed on an outer surface of a wall member,* which permits a flowable material to travel through a conduit. Furthermore, it is not proper to combine the teachings of Cozad with the teachings of Dougherty, as described more fully below.

Vecht

Vecht, et al. (U.S. 4,140,937) teaches an assembly, and construction for an electroluminescent device comprising a multi-layer assembly having electrodes and a layer of electrically-conductive electroluminescent material. Specifically, Vecht teaches how to construct such electroluminescent devices by depositing on a surface of a transparent substrate a layer of an electrically-conductive material using tin oxide. The desired electrode configuration

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701 Fifth Avenue, Suite 4800
Seattle, Washington 98104
206.381.3300 • F: 206.381.3301

can then be obtained by removing the unwanted portions the layer. Once the electrode is in the desired configuration a layer of electroluminescent material is applied to the electrode. Once this construction is satisfactory, a unidirectional voltage is applied to the device until the structure has the correct resistance. Once the desired resistance is obtained, then the current flow will fall and light will be emitted from the construction. According to Vecht, light is emitted by maintaining a low voltage across the electrodes.

Vecht does not disclose, teach or fairly suggest the apparatus taught by the Applicant. More specifically, Vecht does not teach applying an *electroluminescent coating disposed on an outer surface of a wall member,* which permits a flowable material to travel through a conduit. Furthermore, it is not proper to combine the teachings of Vecht with the teachings of Dougherty, as described more fully below.

Dougherty Teaches Away.

As described above, Dougherty expressly teaches away from the Applicant's invention. Dougherty states that, "since no electrical current is being used, the enhanced hose is particularly useful for illuminating the exterior of a hose which is conveying explosive materials such as fuel."(Abstract:13-16). On the other hand, Friend, Klein, Cozad, and Vecht all require electricity. Since the use of electrical current is contrary to the teachings of Dougherty, and since "the prior art must suggest the desirability of the claimed invention" M.P.E.P § 2143.01, it is not proper to combine the teachings of Friend, Klien, Cozad, and Vecht with Dougherty.

Since Dougherty expressly teaches away the cited references (and from Applicant's claimed invention) there is no motivation to combine the teachings of Dougherty with the cited references. Also, Applicant respectfully submits that to do so would render Dougherty unsatisfactory for its intended purpose. If a proposed combination of references would render the prior art invention being modified "unsatisfactory for its intended purposes, then there is no

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701 Fifth Avenue, Suite 4800
Seattle, Washington 98104
206.381.3300 • F: 206.381.3301

suggestion or motivation to make the proposed modification." M.P.E.P § 2143.01 (citations omitted).

No Motivation to Combine.

Applicant respectfully submits that there is no motivation in Dougherty or Friend, Klein, Cozad or Vecht to combine the teachings of these references. To establish a case of *prima facie* obviousness, "there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.." M.P.E.P § 2143 (citations omitted). "The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). In the present situation, Applicant respectfully submits that there is no suggestion or motivation in the cited references to combine the references in the manner suggested by the Examiner to arrive at the claims of Applicant's application.

I. Rejections of claims under 35 U.S.C. 103(a) as being unpatentable over Dougherty in view of Friend, Klein, Cozad, and Vecht.

Claim 22 recites a conduit for transferring a flowable material, comprising; a wall member at least partially enclosing an inner region, the inner region being adapted to receive the flowable material and to facilitate transfer or the flowable material from a first location to a second location, *the wall member including an electroluminescent coating disposed on an outer surface of the wall member, the electroluminescent coating being adapted to emit light outwardly therefrom.* (emphasis added).

As described more fully above, the cited references (Dougherty, Friend, Klein, Cozad, and Vecht), either singly or any proper combination thereof, do not disclose, teach, or fairly suggest a conduit wherein *the wall member including an electroluminescent coating*, as recited in claim 22. Therefore, claim 22 is allowable. Claims 26-28 depend from claim 22 and are

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701 Fifth Avenue, Suite 4800
Seattle, Washington 98104
206.381.3300 • F: 206.381.3301

patentable over the cited references for the same reasons as claim 22 and also due to the additional limitations contained in those claims.

Similarly, claim 29 recites an apparatus for transferring a flowable material, comprising; a tank adapted to contain a flowable material; and a conduit operatively coupled to the tank and adapted to receive the flowable material to facilitate transfer of the flowable material between the tank and the second location, the conduit including a wall member and being adapted to receive the flowable material and to facilitate transfer of the flowable material from a first location to a second location the wall member including *an electroluminescent coating disposed on the outer surface of the wall member, the electroluminescent coating adapted to emit light outwardly therefrom.* (emphasis added).

The cited references (Dougherty, Friend, Klein, Cozad, and Vecht), either singly or any proper combination thereof, do not disclose, teach, or fairly suggest *an electroluminescent coating disposed on the outer surface of the wall member, the electroluminescent coating adapted to emit light outwardly therefrom*, as recited in claim 29. Therefore, claim 29 is allowable. Claims 30 and 33-37 depend from claim 29 and are patentable over the cited references for the same reasons as claim 29 and also due to the additional limitations contained in those claims.

Claim 38 recites an aircraft, comprising: a fuselage; a propulsion system operatively coupled to the fuselage; and an aerial refueling system coupled to the fuselage and including: a tank adapted to contain a flowable material; and a conduit operatively coupled to the tank and adapted to receive the flowable material and to facilitate transfer of the flowable material between the tank and a second location, the conduit including a wall member and being adapted to receive the flowable material and to facilitate transfer of the flowable material from a first location to a second location, *the wall member having an electroluminescent coating disposed on an outer surface of the wall member, the electroluminescent coating being adapted to emit light outwardly therefrom.* (emphasis added).

BLACK LOWE & GRAHAM PLLC
701 Fifth Avenue, Suite 4800
Seattle, Washington 98104
206.381.3300 • F: 206.381.3301

For the foregoing reasons, the cited references (Dougherty, Friend, Klein, Cozad, and Vecht), either singly or any proper combination thereof, do not disclose, teach, or fairly suggest *the wall member having an electroluminescent coating disposed on an outer surface of the wall member, the electroluminescent coating being adapted to emit light outwardly therefrom* as recited in claim 38. Therefore, claim 38 is allowable. Claims 39 and 42-46 depend from claim 38 and are patentable over the cited references for the same reasons as claim 38 and also due to the additional limitations contained in those claims.

Claim 47 recites a method of transferring a flowable material, comprising: providing a conduit operatively coupled to a tank containing the flowable material, the conduit being adapted to receive the flowable material and to facilitate transfer of the flowable material between the tank and a second location, *the conduit including a wall member having an electroluminescent coating disposed on an outer surface of the wall member*; illuminating the luminescent outer layer; emitting light outwardly from the electroluminescent coating; and transferring the flowable material through the conduit from the tank to the second location. (emphasis added).

For the foregoing reasons, the cited references (Dougherty, Friend, Klein, Cozad, and Vecht), either singly or any proper combination thereof, do not disclose, teach, or fairly suggest *the conduit including a wall member having an electroluminescent coating disposed on an outer surface of the wall member* as recited in claim 47. Therefore, claim 47 is allowable. Claims 48 and 51-52 depend from claim 48 and are patentable over the cited references for the same reasons as claim 48 and also due to the additional limitations contained in those claims.

BLACK LOWE & GRAHAM PLLC
701 Fifth Avenue, Suite 4800
Seattle, Washington 98104
206.381.3300 • F: 206.381.3301

CONCLUSION

In light of the foregoing remarks, Applicants respectfully requests reconsideration and withdrawal of the rejections of claims 22, 23, 26-30, 33-39, 42-48, 51 and 52. If there are any remaining matters that can be handled in a telephone conference, the Examiner is kindly requested to telephone the undersigned.

Respectfully submitted,

BLACK LOWE & GRAHAM PLLC

Dale C. Barr
Registration No. 40,498
Direct Dial: 206.957.2463

MAIL CERTIFICATE

I hereby certify that this communication is being deposited with the United States Postal Service via first class mail under 37 C.F.R. § 1.08 on the date indicated below addressed to: MAIL STOP AMENDMENT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

April 11, 2005
Date of Deposit

Wendy Saxby

BLACK LOWE & GRAHAM PLLC
701 Fifth Avenue, Suite 4800
Seattle, Washington 98104
206.381.3300 • F: 206.381.3301